

Plural forms: a bibliometric review

Formas plurais: uma revisão bibliométrica

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Abstract

A balance between vertical integration and outsourcing remains relevant while technology and internet reshape supply chain strategies. Agency Theory, Transaction Costs Economics and Resource Based View aimed to explain “make or buy” decisions, but are still challenged to explain plural forms. A systematic review from the Web of Science™ database, using the CiteSpace software, was conducted to search for prevalent theories, research methods, researched industries and emergent topics. The findings included theories of integrative use, research concentrated on a few industries, franchise literature saturation and dual channel literature expansion. The results indicated that the research on plural forms is quite mature in the large areas of management and economics, whereby theories of the firm used in isolation no longer increase the knowledge about the phenomenon. In the field of Supply Chain Management and Operations Management/Research, there is a growing interest in the study of e-commerce, using game theory and modeling.

Key words: Plural forms. Bibliometric review. Make and buy. Concurrent sourcing. Dual distribution. E-commerce.

Resumo

O balanço entre integração vertical e terceirização permanece relevante, enquanto a tecnologia e a Internet reformulam as estratégias da cadeia de suprimentos. A teoria da agência, a economia de custos de transação e a visão baseada em recursos visam explicar as decisões de “fazer ou comprar”, mas ainda são desafiadas a explicar formas plurais. Uma revisão sistemática da literatura tendo como base artigos publicados na base de dados Web of Science e fazendo uso do software CiteSpace para análise bibliométrica foi conduzida. Os principais tópicos analisados foram teorias, métodos de pesquisa, indústrias pesquisadas e assuntos emergentes. Os resultados incluem teorias de uso integrativo, pesquisa concentrada em algumas indústrias, saturação da literatura sobre franquias e expansão da literatura sobre canais híbridos de vendas. Os resultados indicam que a pesquisa sobre formas plurais é bastante madura nas grandes áreas de administração e economia, onde as teorias da firma usadas isoladamente não acrescentam ao conhecimento sobre o fenômeno. Por outro lado, no campo da Gestão da Cadeia de Suprimentos e gerenciamento de operações, o interesse é crescente no estudo do comércio eletrônico, com aplicação da teoria dos jogos e modelagem.

Palavras-chave: Formas plurais. Revisão bibliométrica. “Fazer e comprar”. Fornecimento simultâneo. Distribuição híbrida. Comércio eletrônico.

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1 Introduction

Technology revolution and the internet have increasingly reshaped supply chain strategies. Managers have a large portfolio of options to turn operations more efficient and competitive. Within this context, the balance between vertical integration and outsourcing remains a relevant issue (Arya & Mittendorf, 2013; Nordigården, Rehme, Brege, Chicksand, & Walker, 2014).

There has been a long debate on the vertical boundaries of the firm. Many traditional theories aimed to explain these limits. Agency Theory (AT), Transaction Costs Economics (TCE), Resource-Based View (RBV) or even Neoclassical Economics are some of the theories employed (Mols, 2010; Parmigiani, 2007). Agency Theory is applied to the study of corporate governance within the firm, focusing on the alignment of incentives for the agent to act in favor of the interests of the principal, reducing agency costs, with attention to the monitoring and asymmetry of information between the parties (Jensen & Meckling, 1976; Mahoney, 2005). On the other hand, Transaction Cost Economics studies governance among firms and seeks to explain the design of transactions, including the choice between make or buy, through the transaction cost reduction paradigm, conditioned by the uncertainty, frequency and specificity of the assets involved (Mahoney, 2005; Williamson, 1985). The resource-based view begins as a general theory of firm growth, particularly conditioned by the limits imposed by the firm management (Mahoney, 2005; Penrose, 1959).

However, when faced with the challenges of explaining plural forms, viewed as “where distinct and different control mechanisms in the same organizational structure are operated simultaneously by a company to perform the same function” (Bradach & Eccles, 1989, p. 99), none of the traditional theories offer answers. The exception are two insightful recent models (Ménard, 2013; Puranam, Gulati, & Bhattacharya, 2013), that extend some of the traditional theories.

Research on plural forms has evolved since Bradach & Eccles (1989) called attention to this issue until then neglected, as they stated. Years later, Ménard (2004, p. 369), by extending Williamson’s classical TCE framework (Williamson, 1985), remarked on the “puzzling and challenging observation: in many cases, different forms of hybrid organizations with diverse levels of integration coexist”. Has the puzzle already been solved or does it require more attention and alternative approaches? How has the related literature evolved? Are there prevalent theories or research methods? Which industries have been studied? Is there any emergent subject or pattern?

The aim of this article is to systematically analyse the literature on plural forms to detect the prevalent theories, the most widely employed research methods and the trends on the subject, contrasting research in the fields of Organization, Management and Economics with those of the fields of Operations Management and Research (OM / R), Supply Chain Management (SCM) and Agribusiness. The research method is based on a bibliometric analysis approach (Neely, 2005). Few previous works detailed how their plural forms literature reviews were conducted. Daniel Nordigården et al. (2014) divided the outsourcing literature into three parts (theoretical approaches, decision frameworks and reasons and ways to go plural). Recently, Schnaider (2016)

presented an exploratory review and expanded the search scope to franchising, plural sourcing and dual distribution articles in a broad range of Organization, Management and Economics reputable journals.

This article follows some concepts and methods of the previous works. For instance, the frame of the original broad circumstances whereby plural forms are found is maintained: (a) make and buy; (b) franchised and owned units; and (c) direct sales force and third party distributors (Bradach & Eccles, 1989). Nevertheless, the article contributes in three different ways. First, the set of articles outlets are considerably expanded. Besides Organization, Management and Economics journals, Operations Management and Research (OM/R), Supply Chain Management (SCM) and Agribusiness journals are added. The vast field of OM/R and SCM, which often deals with sourcing, supply chain choices and strategies, was so far absent. The article takes them into account. In addition, well-known agribusiness outlets are included, since Transaction Costs Economics, one of the theories employed to explain plural forms, has been successfully used to explain agribusiness relationships and sourcing choices. Second, not only the theories but also the research methods, industries and samples are investigated. Third, the computer program CiteSpace is used to build and to visualize co-citation networks, as well as emerging research fields (Chen, 2006).

The article is structured into five sections. Section 1 introduces the context and research questions. Section 2 details the research method. Section 3 provides the results. Section 4 presents the analysis and discusses the findings. Section 5 presents the conclusion and contributions.

2 Research methods

The *Web of Science™ Core Collection* was chosen as the primary database. Previous work has identified reputable Organization, Management and Economics journals in which research related to plural forms has been published (Schneider, 2016). It was advisable to add significant journals to complete that database. Then, the criteria for choosing journals were the number of citations in the *Web of Science™ Core Collection* in each field of knowledge, as well as their use in previous bibliometric surveys. The 28 journals selected constitute the so-called Database 1. Moreover, 15 most cited OM/R and SCM journals were selected. In addition, three representative journals in the Agribusiness field were included to complete the list. These 18 selected journals constitute Database 2. The lists with databases are presented in Tables 1 and 2.

The keywords selected are the same picked in a previous work (Schneider, 2016): “plural forms” and “franchising”, both with an asterisk replacing the last letter or spelling, respectively; “taper integration”; “concurrent sourcing” and “dual distribution”. Several keyword variations were also employed (“plural sourcing”, “plural governance”, “dual sourcing”, “make and buy”, “parallel sourcing” and “mixed strategies”). The articles retrieved with the keyword variations have no better matching with the purpose of the study, and were therefore discarded. Thus, the previous keywords were kept as a useful base for further comparisons.

Table 1 - Journals reviewed: Organization, Management and Economics journals (Database 1)

Academy of Management Journal *
Academy of Management Review *
American Economic Review
Annual Review of Sociology *
Applied Economics
European Journal of Marketing
Industrial Marketing Management
International Journal of Industrial Organization
International Marketing Review
Journal of Business Economics and Management
Journal of Economics Management Strategy
Journal of Industrial Economics
Journal of Institutional and Theoretical Economics Zeitschrift für die Staatswissenschaft
Journal of International Marketing
Journal of Law Economics *
Journal of Law Economics Organization
Journal of Management
Journal of Marketing
Journal of Marketing Research
Journal of Retailing
Journal of Services Marketing
Journal of the Academy of Marketing Science
Management Decision
Marketing Science
Organization Science
Rand Journal of Economics
Review of Industrial Organization
Strategic Management Journal

Note: (*) Added journals in comparison to Schnaider (2016).

Source: The authors.

Table 2 - Journals reviewed: Operations Management / Research, Supply Chain and Agribusiness journals (Database 2)

Agribusiness
British Food Journal
Engineering Costs and Production Economics
European Journal of Operational Research
International Food and Agribusiness Management Review
International Journal of Operations Production Management
International Journal of Production Economics
International Journal of Production Research
Journal of the Operational Research Society
Journal of Operations Management
Journal of Purchasing and Supply Management
Journal of Supply Chain Management
Management Science
Operations Research
Production and Operations Management
Production Engineering
Production Planning Control
Supply Chain Management: An International Journal

Source: The authors.

The search resulted in 346 articles in Database 1 and 56 articles in Database 2. When available, the abstract was read; otherwise, the article introduction section was. The articles mentioning plural forms as the main subject, i.e., as part of the research question or, alternatively, as one of the independent or control variables, were kept and the others, excluded. This criterion is possibly more restrictive than those from previous literature. Database 1 and Database 2 remained with 57 and 27 articles, respectively.

From the preliminary search, published research on franchising was found since the late 1950s, especially in the Journal of Retailing and in the Journal of Marketing. The first mention to plural forms in the franchising literature was in *Trend Toward Company-Operated Units in Franchise Chains*, Journal of Retailing (Hunt, 1973). The field is observed to really flourish just after Bradach & Eccles' (1989) article. Therefore, the time span of the citations considered is from 1989 to May 30th 2016. As a result, 18 articles were excluded from Database 1. Table 3 presents the number of publications considered per journal and per year, for each database

Table 3 - Publications per journal and per year

Source Title	Year																	Total												
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
Database 1																														
Strategic Management Journal			1									1	1					1	1		1			1	2	1		1		
Journal of Retailing						2									1					1			1						5	
Academy of Management Journal								1			1								1										3	
Journal of Management									1						1	1													3	
Journal of Law Economics & Organization				1	1		1																						3	
Industrial Marketing Management																			1					1	1				3	
Applied Economics					1																						1		2	
Journal of Marketing															1				1										2	
Journal of Industrial Economics									1																				1	
Journal of Institutional and Theoretical Economics								1																					1	
Journal of the Academy of Marketing Science												1																	1	
Marketing Science																												1	1	
Annual Review of Sociology	1																												1	
Rand Journal of Economics				1																									1	
Review of Industrial Organization							1																						1	
International Journal of Industrial Organization													1																1	
Total	1	0	1	2	2	2	2	2	1	1	1	2	1	1	3	1	0	2	3	1	1	0	2	2	2	2	2	1	3	
Database 2																														
European Journal of Operational Research																	1	1				1	1					1	6	
International Journal of Production Economics																						1	1	1	1	1	1	1	5	
Production and Operations Management															1							1			1				2	5
International Journal of Production Research																										1	1		2	
Management Science							1								1														2	
British Food Journal																											1	1	2	
Journal of The Operational Research Society																							1			1			2	
International Journal of Operations & Production Management																											1		1	
Production Planning & Control																													1	
Journal of Purchasing and Supply Management																													1	
Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	6	0	2	3	4	6	2	

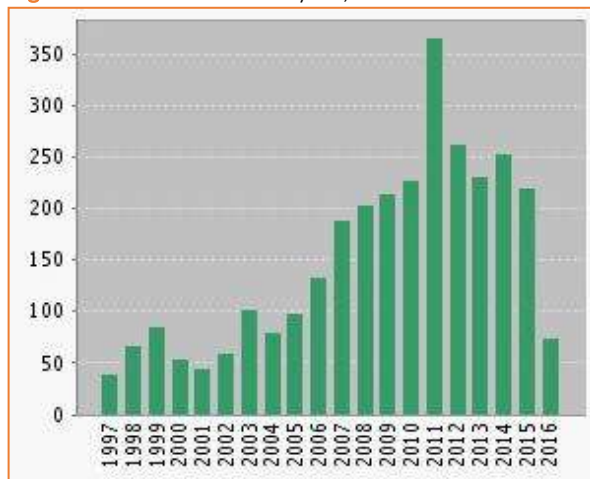
Source: The authors.

3 Results

Bibliometric data drawn from the *Web of Science™* database are displayed and commented in this section. Each database is treated separately: Database 1 (Organization, Management and Economics journals) and Database 2 (Operations Management / Research, Supply Chain and Agribusiness journals). Citations in each year, most cited articles and the evolution of article citation are displayed.

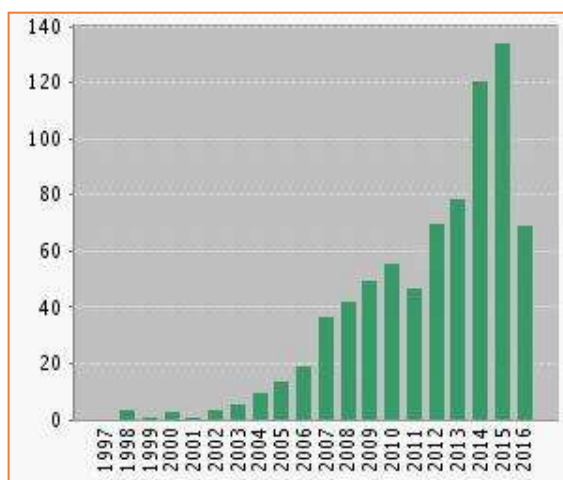
Figures 1 and 2 display the latest 20 years of total article citations of each database. The plural forms citations among Database 1 doubled between 2005 and 2010 (from about 100 citations to 200), and reached the peak in 2011 (365 citations). After this, there was a decrease to 250 citations per year, approximately. Currently, the tendency seems to be from stable to a slightly decrease. On the other hand, citations of plural forms in Database 2 articles have increased since 2002 (except for 2011).

Figure 1 - Citations in each year, Database 1



Source: The authors.

Figure 2 - Citations in each year, Database 2



Source: The authors.

Bradach & Eccles' (1989) seminal article is the most cited in Database 1 (Table 4). The authors discuss the role of price, trust and authority governing franchise relationships. Lafontaine (1992), the second most cited article, poses the agency theory framework to understand ownership issues in the franchising industry. Among the 11 most cited articles, two articles by Anne Parmigiani, covering upstream “make and buy” decisions, are relatively recent and despite the total not so high citations, their average citations per year are noticeable (Parmigiani, 2007; Parmigiani & Mitchell, 2009).

Table 4 - Most cited articles, Database 1

Article	Total citations	Average citation per year
Bradach, JL; Eccles, RG (1989)	730	26.07
Lafontaine, F (1992)	355	14.20
Parmigiani, A (2007)	115	11.50
Cannon, JP; Achrol, RS; Gundlach, GT (2000)	192	11.29
Rothaermel, FT.; Hitt, MA.; Jobe, LA. (2006)	115	10.45
Combs, JG; Michael, SC; Castrogiovanni, GJ (2004)	107	8.23
Parmigiani, A; Mitchell, W (2009)	62	7.75
Shane, AS (1996)	162	7.71
Sorenson, O; Sorensen, JB (2001)	121	7.56
Combs, JG; Ketchen, DJ (1999)	85	4.72
Michael, SC (2000)	52	3.06

Source: The authors.

In Database 2, Chiang, Chhajed, & Hess (2003) and Tsay & Agrawal (2009) hold the highest total citations and average citation per year (Table 5). They relaunched a body of studies that employ the game theory to model channel conflicts and have updated this agenda by covering e-commerce-related decisions, especially when manufacturers go toward a dual distribution strategy. That dual distribution is essentially a downstream plural form governance, when manufacturers rely on their incumbent traditional channel (“brick and mortar” retailers, for instance) and, simultaneously, on a new direct sales channel through internet. The initial article of the set, Fladmoe-Lindquist & Jacque (1995) remains well positioned after 21 years.

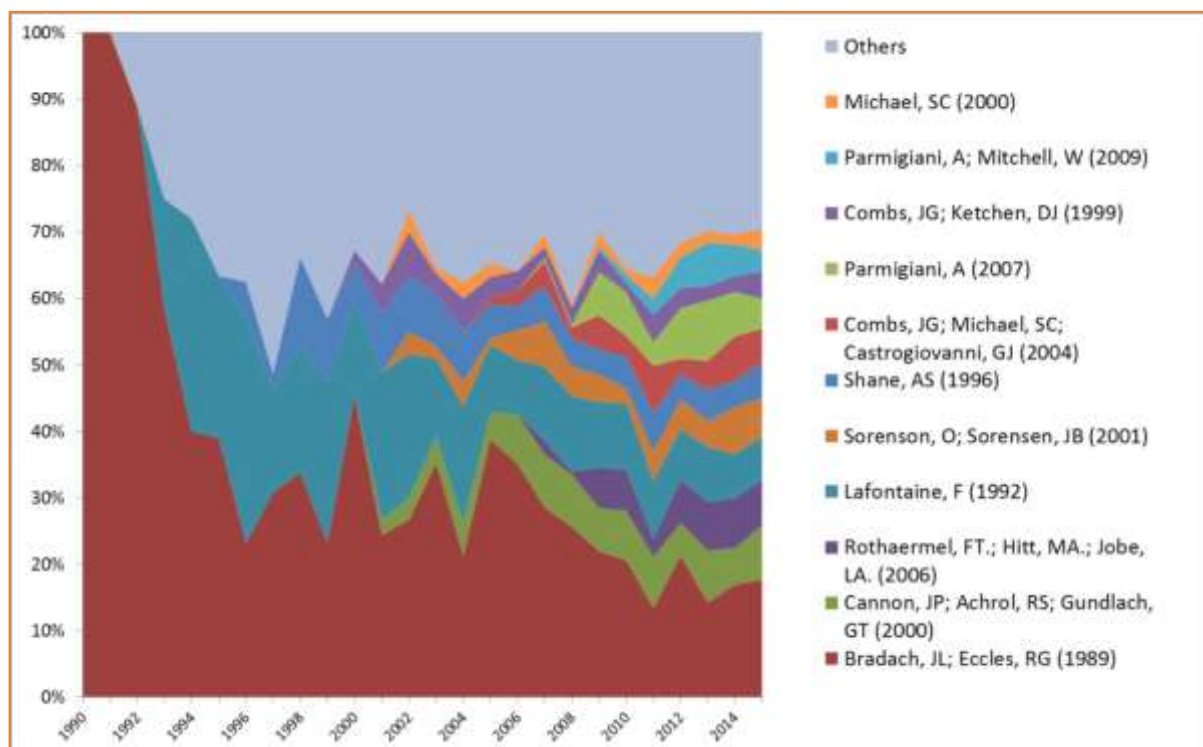
Table 5 - Most cited articles, Database 2

Article	Total citations	Average citation per year
Chiang, WYK; Chhajed, D; Hess, JD (2003)	264	18.86
Tsay, AA; Agrawal, N (2004)	182	14.00
Xu, G; Dan, B; Zhang, X; Liu, C (2014)	25	8.33
Chiang, WYK; Monahan, GE (2005)	67	5.58
Fladmoe-Lindquist, K; Jacque, LL (1995)	111	5.05
Chiang, WYK (2010)	21	3,00
Geng, Q; Mallik, S (2007)	26	2.60
Xu, H; Liu, ZZ; Zhang, SH(2012)	12	2.40
Xiong, Y; Yan, W; Fernandes, K; Xiong, ZK; Guo, N (2012)	12	2.40
Xu, Y; Gurnani, H; Desiraju, R (2010)	8	1.14

Source: The authors.

Ranking the most cited articles is a useful way to display the relative importance of each article, yet this importance may vary over time. Hence, it gives room to tracking their historical relative importance by measuring the ratio of citations of each article per the sum of citations of all the database articles per year. Figures 3 and 4 present these results.

Figure 3 - Article citation in percentage of the totality of citations, per year, Database 1

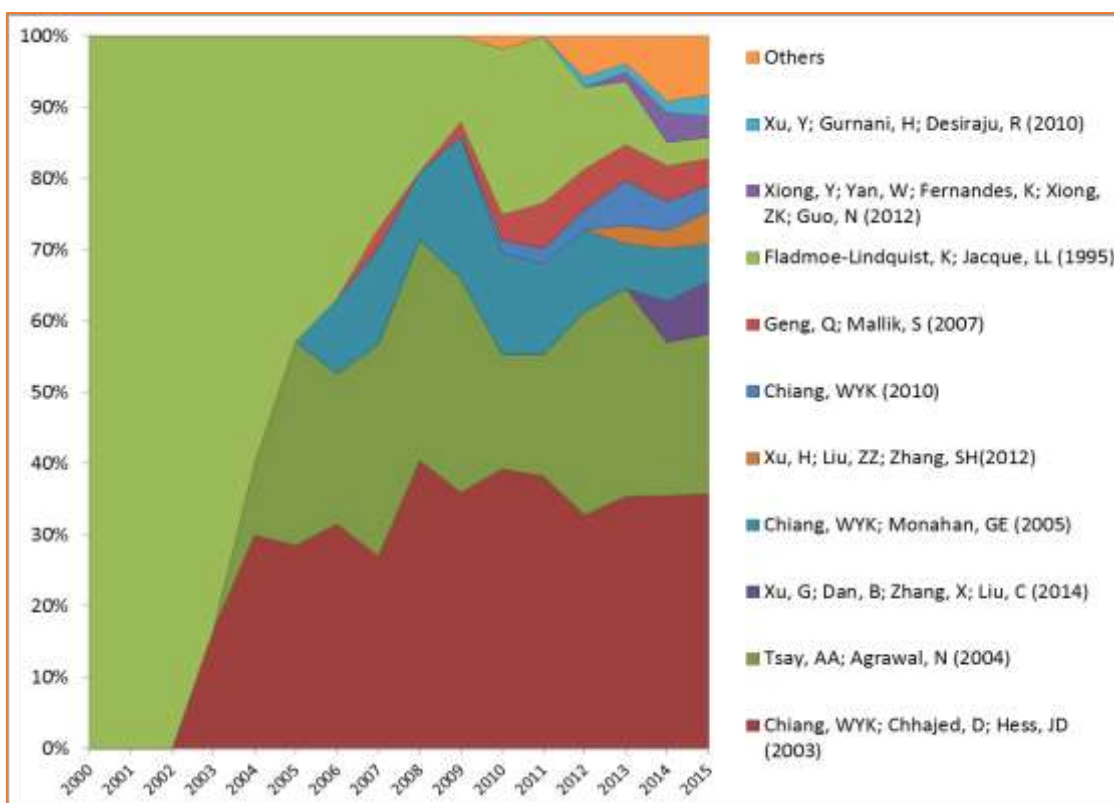


Source: The authors.

The citation pattern of plural forms in Organization, Management and Economics journals (Database 1) have shifted since 2000. Besides Bradach & Eccles (1989), Lafontaine (1992) and Shane (1996), many other articles have gained attention. Currently, 10 articles represent 70% of the citations. Bradach & Eccles (1989) still heads, but with half the percentage it used to have 10 years ago (Figure 3). Similarly, the plural form literature in the operations field (Database 2) has also shifted around 2009 (Figure 4). However, differently from Database 1, citations remains concentrated on Chiang et al. (2003) and Tsay & Agrawal (2009).

Research methods and theories are quite different when comparing the databases. While surveys lead in Database 1 (25 cases in 39), modeling leads in Database 2 (22 cases in 27). Notably, case studies are absent from Database 1 and there are only 3 cases in Database 2. Theoretical developments are especially made in Database 1 (Table 6).

Figure 4 - Article citation in percentage of the totality of citations, per year, Database 2



Source: The authors.

Table 6 - Research method, theory, industry and others

		Database 1	Database 2
Research method	Survey	25	1
	Modeling	3	22
	Case study	-	3
	Meta-analysis	2	1
	Theoretical	9	-
Theory	Agency	20	-
	TCE	14	2
	Resource restriction	10	-
	Game theory	-	12
	Neoclassical economics	7	6
	Agency & Resource restriction	6	-
	Agency & TCE	3	-
Others	6	9	
Industry	Franchise (various)	15	1
	Franchise (restaurants&food)	5	-
	Electronic goods	-	8
	Industrial sector (miscellaneous)	4	-
	Metal&mechanical goods	3	-
	Others	6	5
Plural form variable	Dependent	22	-
	Independent	6	-
	Control	1	-
Supply chain side	Upstream	8	3
	Downstream	31	20
	Both	-	4

Source: The authors.

The franchising industry is by far the most surveyed in Database 1, while electronic goods, such as printers and microcomputers, are employed in an anecdotal way to illustrate concepts and, sometimes, market assumptions in the modeling articles of Database 2.

In most cases in Database 1, plural form is treated as a dependent variable. In franchising empirical studies, the variable is commonly operationalized as the percentage of franchisor-owned stores. In concurrent sourcing studies, plural form has been treated as a discrete variable with multinomial logit models that successfully discriminate governance choices among three categories: “make”, “make *and* buy” and “buy”. The “make *and* buy” category is alternatively spread on a scale, in accordance with the percentage of internal production (Parmigiani, 2007; Parmigiani & Mitchell, 2009). When used as an independent variable, plural form explains firms performance.

Differently, the operations literature in Database 1 considers plural forms embedded in the business environment. Downstream studies are more common in both databases. Both sides of the supply chain, i.e., upstream and downstream, are present in only three modeling articles.

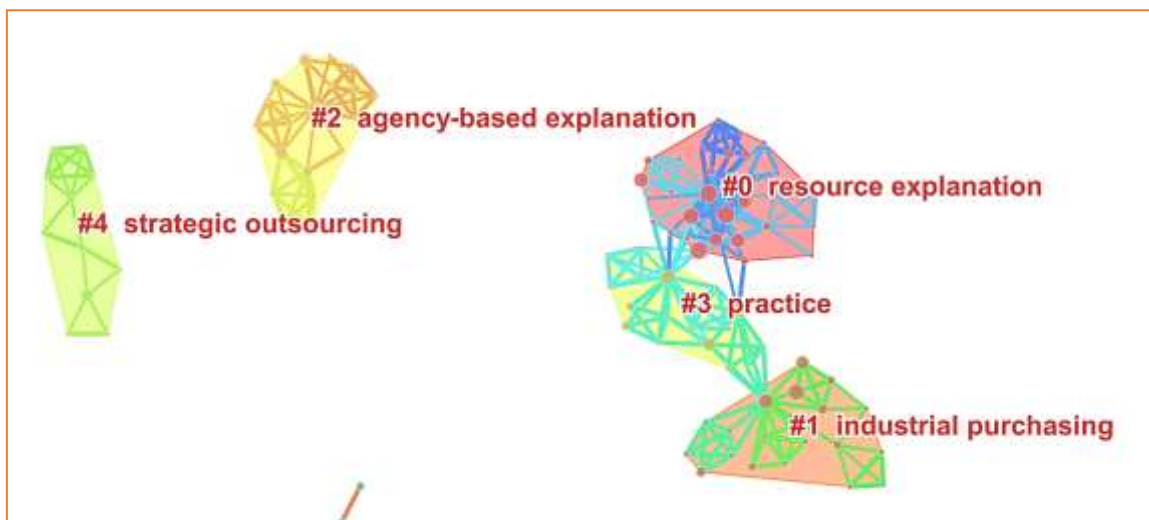
In addition to the traditional bibliometric outputs above, we also analyze the databases with the CiteSpace software. According to Chen (2015), CiteSpace takes bibliographic information, especially citation information from the *Web of Science™*, and generates interactive visualizations helpful to analyze the literature of a scientific domain. Two classes of outputs are generated: (a) clusters: cluster visualization, timeline-cluster visualization and summary report and (b) burst analysis.

3.1 Clusters

CiteSpace builds clusters of co-cited references, whereby the nodes are the cited references. Two variables evaluate clusters clarity and quality. In accordance with Chen (2015, p 29), “the modularity of a network measures the extent to which a network can be decomposed into multiple components, or modules. The silhouette value of a cluster measures the quality of a clustering configuration. Its value ranges between -1 and 1. The highest value represents a perfect solution.” The measures are interconnected and balancing the modularity and silhouette scores simultaneously is recommended (Chen, Ibekwe-SanJuan, & Hou, 2010).

There are five major co-citation clusters in Database 1 (Figure 5). Modularity and mean silhouette are highly scored and the largest four clusters have representative sizes, with acceptable clarity and quality. The labels are automatically generated by three CiteSpace algorithms by extracting noun phrases from abstracts.

Figure 5 - Database 1 clusters

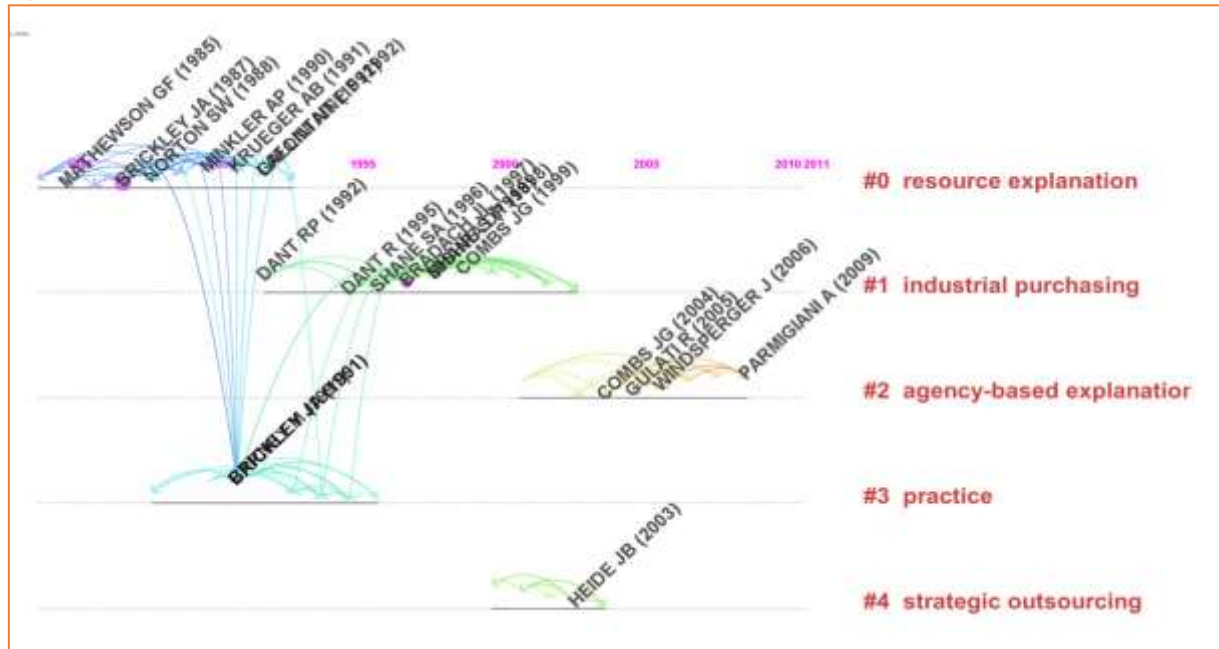


Modularity = 0,8054; Mean Silhouette = 0,9763.

Source: The authors.

The agency-based explanation cluster (#2) has the most recent average publication year and appears apart from the others (Figure 5). Parmigiani & Mitchell (2009) is the latest notable article there. Another separate cluster is the strategic outsourcing one (#4), with Heide (2003) leading the citations. The resource explanation cluster (#0) and industrial purchasing (#1) are connected by the practice (franchising contract) cluster (#3). Among the connected clusters, industrial purchasing (#1) is the most recent and fades about the early 2000s. Clusters are also visualized on a horizontal timeline (Figure 6) and the average year of publication is also calculated (Table 7).

Figure 6 - Database 1 clusters timeline - most cited articles



Source: The authors.

Table 7 - Database 1 major clusters

Cluster ID	Size	Silhouette	Label (TFIDF)	Label (LLR)	Label (MI)	Average publication year
#0	30	0.805	resource explanation	franchise system	empirical result	1989
#1	20	0.977	industrial purchasing	industrial purchasing	chain performance	1997
#2	19	1.000	agency-based explanation	agency-based explanation	effect	2006
#3	18	0.888	practice, franchise contract	theory, franchise contract	Empirical result	1992
#4	11	1.000	strategic sourcing	Intangible firm value	Intangible firm value	2002

Source: The authors.

The same cluster generation process was used with Database 2. The quality and clarity of the network are both high scored. Database 2 major clusters set has twice the size of those in Database 1 (Table 8). Database 2 network pattern is thus much more fragmented (Figure 7). The first cluster to emerge is direct marketing (#4), followed by the major one, e-commerce age (#0). These two clusters are linked with each other and apart from the main core set of clusters (#1, #2, #3, #5 and #7).

Table 8 - Database 2 major clusters

Cluster ID	Size	Silhouette	Label (TFIDF)	Label (LLR)	Label (MI)	Average publication year
#0	42	0.998	e-commerce age	e-commerce age	coordination	1999
#1	37	0.989	multi-channel distribution system	multi-channel distribution system	bricks vs. clicks	2004
#2	35	0.796	symmetric manufacturer	using dual-channel supply chain	assortment decision	2010
#3	29	0.972	scenario planning approach	scenario planning approach	two-way revenue sharing contract strategic supply chain structure design	2008
#4	23	0.976	direct-marketing	direct-marketing	supply chain structure design	1988
#5	21	0.922	price; dual-channel supply chain design	price; dual-channel supply chain design	assortment decision	2006
#6	20	1.000	brazil; plurality	brazil; plurality	-	2010
#7	17	0.977	production cost disruption	production cost disruption	production cost disruption experience goods industry	2011
#8	14	1.000	experience goods industry	digital channel distribution	experience goods industry	2005
#9	11	1.000	outsourcing decision	parallel production	-	2008

Source: The authors.

Figure 7 - Database 2 clusters

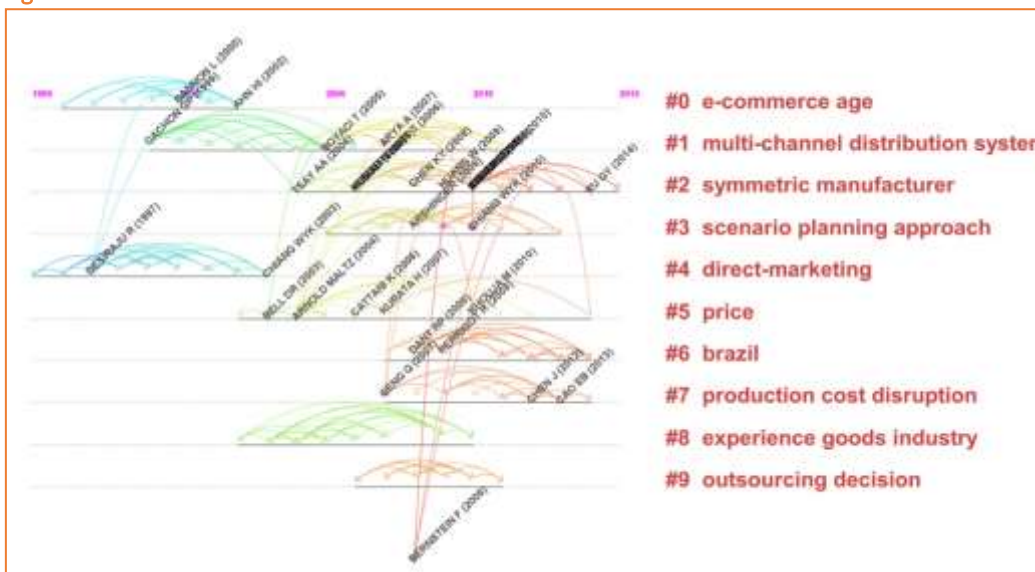


Modularity = 0,8694; Mean Silhouette = 0.8506

Source: The authors.

Among the main core clusters, symmetric manufacturing (#2) and production cost disruption (#7) are the most recent. Cluster #2 emerged in the early 2000s and is still developing. Its latest notable article is “Coordinating a dual-channel supply chain with risk-averse under a two-way revenue sharing contract” (G. Xu, Dan, Zhang, & Liu, 2014). The other separated clusters are Brazil (plurality) (#6), experience goods (#8) and outsourcing decisions (#9) (Figure 8).

Figure 8 - Database 2 clusters timeline - most cited articles



Source: The authors.

3.2 Burst Analysis

Chen (2015, p. 36) gives a precise definition and interpretation of citation burst:

“Citation burst is an indicator of a most active area of research. A citation burst provides evidence that a particular publication is associated with a surge of citations. In other words, the publication evidently has attracted an extraordinary degree of attention from its scientific community. Furthermore, if a cluster contains numerous nodes with strong citation bursts, then the cluster as a whole captures an active area of research, or an emerging trend.”

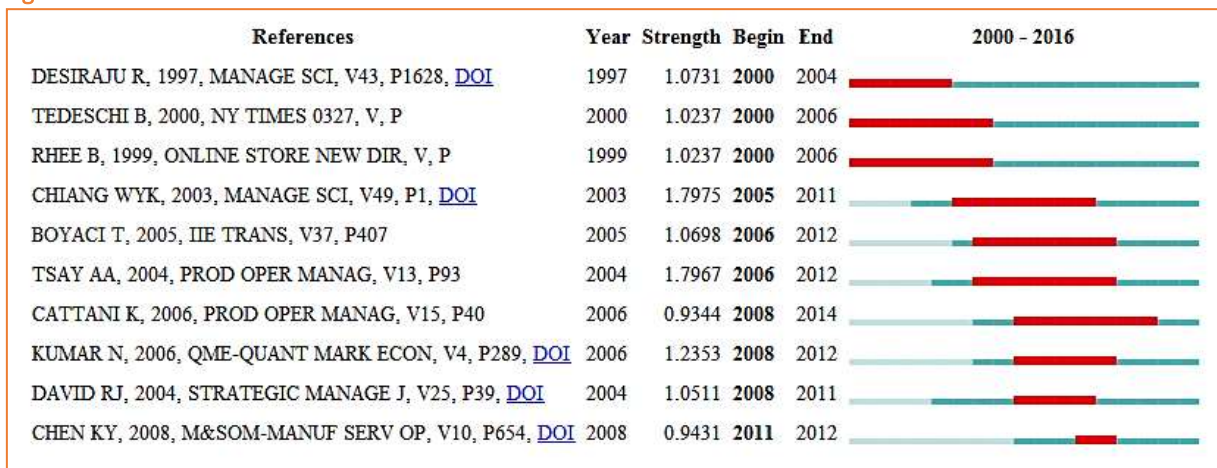
Figures 9 and 10 display Databases citations bursts. In Database 1, “Why do firms both make and buy? An investigation of concurrent sourcing” (Parmigiani, 2007) burst with strength between 2009 and 2014. Conversely, there is no such strength bursts in Database 2. Chiang et al. (2003) and Tsay & Agrawal (2009) burst with relative strength. Recently, “Boiling frogs: Pricing strategies for a manufacturer adding a direct channel that competes with the traditional channel” (Cattani, Gilland, Heese, & Swaminathan, 2006) burst but with low strength.

Figure 9 - Database 1 citation bursts



Source: The authors.

Figure 10 - Database 2 citation bursts



Source: The authors.

4 Discussion

The Bibliometric review, including the outputs of CiteSpace, allows a closer view of the major and more active research areas of each Database. Database 1 major area is labeled as a resource explanation and franchise system in cluster #0. Capital scarcity was one of the initial explanations for franchise. This area has not been active for the last twenty years. In contrast, the agency-base explanation area (cluster #2) is more active recently and contains an article that bursts from 2009 to 2014 (Parmigiani, 2007). Nevertheless, it remains a small cluster, with only 19 co-citation references. In comparison with Database 1, Database 2 major clusters are larger in size and much more active recently, albeit very fragmented. It can thus be deduced that the Organization, Management and Economics literature regarding plural forms explanations, especially in the franchise industry, is saturated. However, the Operations and Management Research and Supply Chain literature is still evolving.

AT, TCE and RBV prevail in Database 1, whereas the Game Theory does in Database 2. Note that, in the most recent studies in Database 1, multiple theories are used to more thoroughly explain the phenomena of plural forms, particularly by combining AT with RVB or TCE (Parmigiani, 2007; Parmigiani & Mitchell, 2009). However, there is little cross-fertilization between areas, and the typical e-commerce studies of Database 2 are still mostly studies solely on the Game Theory.

One perspective apparently barely explored is the development of mid-range theory to advance into plural forms explanation. Nordigården et al. (2014) take a step in this direction. The authors apply a multiple case study approach. There is also a lack of empirical studies covering downstream operations within the dual-distribution articles that burst last decade.

Survey research is remarkably prevalent in Database 1, modeling in Database 2 and case study is practically absent from both. The industries surveyed in Database 1 changed from single franchising sectors from the early days to multi-sectors more recently. In both databases, there is a concentration on downstream distribution operations and selling channels. E-commerce effects, when a manufacturer deploys a direct sales structure, which started to share the market with the traditional retailers, permeate most of the literature in Database 2

While Database 1 literature takes plural form mostly as a dependent or an independent variable, Database 2 literature treats plural forms as embedded, i.e., endogenous. Possibly, Database 1 traditions and foundations are more concerned with the development of positive and normative theories for the firm. Thus, vertical boundaries, integration and outsourcing decisions are central to the models.

However, Database 2 literature proposes different contracts to better coordinate dual distribution channels, such as reverse revenue sharing contracts (Geng, 2007), royalty contract (Y. Xu, Gurnani, & Desiraju, 2010); two-way revenue sharing (G. Xu et al., 2014); linear quantity discount contract (David & Adida, 2015); price and fee contract (Zhang, Xiong, & Xiong, 2015). Although there is not a consensus, most of them argue that traditional retailers, dealers and supply chains may benefit from manufacturer's encroachment (H. Xu, Liu, & Zhang, 2012). Empirically testing these models could be a novelty. How are different local institutions affecting these arrangements?

In both databases, there are few upstream studies in comparison to downstream ones (11 to 51). Outsourcing decision modeling and the impact of plural forms on firms performance could be more explored.

In summary, it appears from the analysis of results that the predominant theories are Agency Theory, Transaction Cost Economics and Resource Based-View (Database 1) and Game Theory (Database 2), and that the most recent trend is the joint use of these theories to study the phenomenon. Surveys prevail in Database 1, whereas modeling, in database 2. In addition, in all the areas of knowledge analyzed, the study of plural forms predominates in the distribution, that is, in the downstream activities. E-commerce is the most recently subject, while the study of franchising seems to be outdated.

5 Conclusion

The results allow stating that there is room to advance into plural forms research. The puzzle requires more attention and alternative approaches, but some caution is required. Franchise literature, downstream studies and surveys are numerous. Thus, the main conclusion is that the research on plural forms is quite mature in the large areas of management and economics, where theories of the firm used in isolation no longer substantially increase the knowledge about the phenomenon. In turn, in the field of SCM and OM / R, there is growing interest in the study of e-commerce, using game theory and modeling.

The search for scientific literature in platforms (*Web of Science™*, is the present case) provides numerous obvious advantages, although there are at least three caveats. First, relevant articles may be left out for different reasons, such as (a) chosen search keywords may be absent from the title, abstract or article keywords set; (b) the article has been published by a non-indexed journal; (c) some relevant literature may belong to books, working papers or conferences, also remaining out of the platform base. Second, the process to filter and to exclude articles by reading the abstract and keywords may miss some points, which could only be avoided by reading the full text. Third, the choice of relevant journals was arbitrary, leading to some undesirable exclusion.

Regarding the dual distribution literature, especially that related to e-commerce, most of the modeling articles in Database 2 propose contracts that should ideally improve the outcomes for buyers and suppliers. Future research could uncover to what extent these contracts are used among different industries and how the institutional environment could affect such contracts. Besides the institutional perspective, one of the possible explanations for having more plural forms in the distribution would be the heterogeneity of the consumer market in terms of preference, which leads companies to act in more than one channel. In addition, different channels can have complementary profitability. Previous field research undertaken by authors indicates that the food industry has different distribution channels in Brazil, acting alongside large retailers, small retailers and door-to-door sales channels. The latter are the most profitable while the first has low profitability, due to the greater bargaining power of large retailers, but provides visibility to the supplier's brand in gondolas.

A theory that explains and predicts plural forms may evolve from a better knowledge about its effect on firms performance.

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